

**B. AMENDMENTS TO THE CLAIMS**

1. (Withdrawn) A method of producing megakaryocytes *in vitro* comprising co-culturing human mesenchymal stem cells with CD34+ cells to induce the CD34+ cells to differentiate into megakaryocytes.
2. (Withdrawn) The method of claim 1 wherein the mesenchymal stem cell population is allogeneic or autologous to the hematopoietic progenitor cell population.
3. (Withdrawn) The method of claim 1 wherein the cells are in close physical association in a monolayer.
4. (Currently amended) A method for treating a patient in need of megakaryocytes, comprising administering to the patient isolated human mesenchymal stem cells in an amount effective to produce megakaryocytes.
5. (Currently amended) A method for treating a patient in need of megakaryocytes comprising administering to the patient isolated human mesenchymal stem cells and CD34+ cells in an amount effective to produce megakaryocytes.
6. (Withdrawn) A method of producing genetically modified megakaryocytes, comprising transducing hematopoietic progenitor cells with exogenous genetic material; and culturing the transduced hematopoietic cells in the presence of mesenchymal stem cells to induce differentiation of the transduced hematopoietic cells into megakaryocytes which contain the exogenous genetic material.
7. (Withdrawn) A composition of genetically modified megakaryocytes.
8. (Withdrawn) A composition of genetically modified platelets.